Federal Reserve Banks

A major activity of the Federal Reserve Banks again in 1998 was preparation for the century date change. Efforts in that area as well as other activities affecting the Reserve Banks are described in this chapter.

Century Date Change

The Federal Reserve Banks in 1998 made considerable progress toward ensuring that they continue to provide reliable service to the nation's banking system and financial markets at the turn of the century. By year-end 1998, the Reserve Banks had completed nearly all changes to applications critical to their mission, such as Fedwire funds transfer, Fedwire securities transfer, and FedACH; system testing; and user acceptance testing. The Federal Reserve also took steps to meet a possible increase in the demand for currency as the year 2000 nears.

In 1998, the Reserve Banks supported extensive year 2000 testing by depository institutions. Testing facilities were made available beginning in midyear, and more than 5,000 depository institutions had tested with the Federal Reserve by year-end. The Federal Reserve will continue to offer year 2000 testing through 1999.

Also during the year, the Reserve Banks introduced programs focusing on year 2000 contingency planning, planning for responding to customer disruptions, and event management. In addition, the Federal Reserve implemented a change-management policy that will provide a stable operations environment at the millennium.

The Federal Reserve in 1998 continued to educate the public on plans for addressing the year 2000 problem and continued to advise depository institutions of the Federal Reserve's plans and schedules. The Reserve Banks participated in numerous domestic and international forums to help foster awareness of year 2000 issues and to share experiences, ideas, and best practices. In December, the Federal Reserve sponsored an interactive teleconference with depository institution customers to discuss the Federal Reserve's contingency planning for the year 2000. The Federal Reserve also provided extensive information concerning its year 2000 activities to government oversight organizations, including the U.S. General Accounting Office, the House and Senate Banking Committees, and the Office of Management and Budget.

In anticipation that individuals may hold extra cash during the century rollover as a precaution, the Federal Reserve in 1998 made plans to have ample supplies of currency available in late 1999 to meet potential demand. The Federal Reserve will increase the value of currency either in circulation or in Federal Reserve vaults about 15 percent over current levels, resulting in a cushion of about $200 billion. In addition, the Reserve Banks have encouraged depository institutions to develop contingency plans to meet a possible increase in cash demand.

Developments in Federal Reserve Priced Services

The Monetary Control Act of 1980 requires that the Federal Reserve set fees for providing "priced services" to depository institutions that, over the long run, recover all the direct and indirect costs of providing the services as well as the imputed costs, such as the income taxes that would have been paid and the return on equity that would have been earned had the services been provided by a private firm. The imputed costs and imputed profit are collectively referred to as the private sector adjustment factor (PSAF).[1] Over the past ten years, the Federal Reserve Banks have recovered 100.7 percent of their priced services costs, including the PSAF.

Overall, the price index for Federal Reserve services declined approximately 3.7 percent from 1997.[2] Revenue from priced services was $816.0 million, other income related to priced services was $23.7 million, and costs related to priced services were $697.5 million, including the PSAF. Income before income taxes was $142.3 million; priced services recovered 103.7 percent of total costs. In 1997, revenue from priced services was $97.3 million more than costs related to priced services, including the PSAF, and priced services recovered 101.5 percent of total costs.[3]

Check Collection

In 1998, total Reserve Bank operating expenses and imputed costs for commercial check services were $577.3 million, compared with $581.2 million in 1997. Revenue from check operations totaled $632.6 million, and other income amounted to $19.1 million, resulting in income before income taxes of $74.5 million. The Reserve Banks handled 16.6 billion checks, an increase of 3.9 percent over 1997 (see table). The volume of fine-sort check deposits, which are presorted by the depositing bank according to paying bank, decreased 3.6 percent in 1998, compared with an increase of 0.7 percent in 1997. The volume of checks deposited that required processing by Reserve Banks rose 5.3 percent; in 1998, the Banks processed 85.6 percent of the checks they presented, and they received the remaining 14.4 percent in fine-sort deposits.

Overall, the fees charged by the Reserve Banks for paper and electronic check products rose approximately 2.5 percent compared with 1997. Fees for paper products rose about 3.4 percent, while fees for electronic products (primarily payor bank information and electronic check presentment) declined approximately 6.2 percent.

The use of electronic check products provided by the Reserve Banks has continued to grow rapidly. During 1998, the Banks electronically presented 2.8 billion checks, or about 16.9 percent of all checks presented to paying banks, an increase of 24.7 percent over 1997. The use of electronic check information products declined 2.1 percent. Reserve

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1. In addition to income taxes and the return on equity, the PSAF is made up of three imputed costs: interest on debt, sales taxes, and assessments for deposit insurance from the Federal Deposit Insurance Corporation. Also allocated to priced services are assets and personnel costs of the Board of Governors that are related to priced services; in the *pro forma* statements at the end of this chapter, Board expenses are included in operating expenses and Board assets are part of long-term assets.

2. Based on a chained Fisher Ideal price index not adjusted for quality changes.

3. Financial data reported throughout this document—revenue, other income, cost, net revenue, and income before taxes—can be linked to the *pro forma* statements at the end of this chapter. *Other income* is revenue from investment of clearing balances, net of earnings credits, an amount termed net income on clearing balances. *Total costs* are the sum of operating expenses, imputed costs (interest on debt, interest on float, sales taxes, and the Federal Deposit Insurance Corporation assessment), imputed income taxes, and the targeted return on equity.

Banks provided data to paying banks electronically for 25.4 percent of checks presented. Thirty-seven offices, at least one office in every Federal Reserve District, now offer products involving the capture and storage of digital check images. In 1998, images were captured of approximately 3.9 percent of the checks presented by the Reserve Banks.

In 1998, the Reserve Banks adopted a strategy to standardize check-processing environments across Banks and thereby lower the operating costs of providing check processing and provide greater consistency in products and service levels. The Banks plan to establish standard hardware platforms and to develop software systems that can be used on either of the System's check-processing platforms, to consolidate processor management, and to develop common Reserve Bank check-processing applications. The Reserve Banks' Retail Payments Office, which directs check and automated clearinghouse (ACH) services and the Interdistrict Transportation System for the Banks, will manage this long-term initiative. During the year, this office relocated to the Federal Reserve Bank of Atlanta from the Federal Reserve Bank of Boston.

In March, the Board requested comment on the effect of its same-day settlement rule on the interbank check-collection market, on the check-collection process, and, more broadly, on the payments system. The Board also requested comment on the benefits and drawbacks of reducing legal disparities, such as the later presentment time available to the Reserve Banks, between Federal Reserve Banks and private collecting banks in the presentment and settlement of checks. On the basis of an analysis of the comments received, the Board concluded that the costs associated with further reducing legal disparities would outweigh any payments system efficiency gains and, in December, decided not to propose any specific regulatory changes with respect to the remaining legal differences between the Reserve Banks and private collecting banks.

Fedwire Funds Transfer and Multilateral Settlement

Reserve Bank operating expenses and imputed costs for Fedwire funds transfer and multilateral settlement services totaled $72.7 million in 1998, compared

Activity in Federal Reserve Priced Services, 1998, 1997, and 1996

Thousands of items

Service	1998	1997	1996	Percentage change	
				1997 to 1998	1996 to 1997
Commercial checks	16,573,463	15,949,152	15,486,833	3.9	3.0
Funds transfers	100,609	91,800	84,871	9.6	8.2
Securities transfers	5,115	4,136	4,125	23.7	.3
Commercial ACH	2,965,739	2,602,892	2,372,108	13.9	9.7
Noncash collection	755	887	1,069	−14.8	−17.1
Cash transportation	18	27 [1]	36	−32.6	−25.2 [1]

NOTE. Components may not yield percentages shown because of rounding. Activity in *commercial checks* is the total number of commercial checks collected, including processed and fine-sort items; in *funds transfers* and *securities transfers*, the number of transactions originated on line and off line; in *commercial ACH*, the total number of commercial items processed; in *noncash collection*, the number of items on which fees are assessed; in *cash transportation*, the number of registered mail shipments and FRB-arranged armored carrier stops.

1. Restatements resulting from a change in definition or to correct a previously reported error.

with $79.9 million in 1997. Revenue from these operations totaled $92.2 million, and other income amounted to $2.3 million, resulting in income before income taxes of nearly $21.8 million.

Fedwire Funds Transfer

The number of Fedwire funds transfers originated by depository institutions increased 9.6 percent in 1998, to 100.6 million. The increase in volume was due largely to sustained strong economic growth.

Fees charged for Fedwire funds transfers were lowered 11.1 percent in January 1998, from $0.45 to $0.40 per basic transfer. The reduction reflects efficiencies resulting from the processing of funds transfers in a centralized environment.

In December 1997, the Fedwire funds transfer service began opening at 12:30 a.m. eastern time instead of 8:30 a.m., thereby expanding the service day to eighteen hours from the previous ten hours. On average, the funds transfer service processed 3.4 percent of its daily transfer volume and about 0.5 percent of daily value before 8:30 a.m.; approximately eighty Fedwire participants originated funds transfers in the early morning. The level of participation and transfer activity before 8:30 a.m. remained relatively constant throughout 1998.

Depository institutions that do not have an electronic connection to the Fedwire funds transfer system can originate transfers via ‘‘off-line’’ telephone instructions. The volume of off-line Fedwire funds transfers has been declining substantially in recent years. Because of the decline and the small percentage of transfers that are originated off line (0.04 percent), the Federal Reserve in 1998 began consolidating its Fedwire off-line services at the Federal Reserve Banks of Boston and Kansas City. Seven Reserve Banks consolidated their off-line activity during the year, and the remaining three are scheduled to consolidate their activity by March 1, 1999. Consolidation will allow the Reserve Banks to streamline service and ensure uniform service nationwide.

In response to a request by correspondent banks expressing difficulty managing their reserve positions because they were receiving respondent transfers late in the day, the Board in June requested comment on a proposal to segment the last half-hour of the Fedwire funds transfer operating day into two settlement periods. Transfers to or from respondent banks would have been prohibited during the last fifteen minutes of the Fedwire operating day. Support for the proposal was mixed. In December, the Board concluded that the benefits of a segmented settlement period did not warrant the change, and it decided not to adopt a segmented settlement period. Rather, the Board believes that correspondents can mitigate reserve-management difficulties on their own by imposing internal cutoff times for sending and receiving respondent transfers.

Multilateral Settlement

The Federal Reserve provides settlement services to approximately 130 local and national private-sector clearing and settlement arrangements. In 1998, the Reserve Banks processed about 373,000 settlement entries for these arrangements.

The Reserve Banks offer two types of settlement services. In the ‘‘settlement sheet’’ service, the settlement agent for a clearinghouse provides a settlement sheet to a Reserve Bank. The Reserve Bank posts net debit and credit entries to the accounts of the settling participants. The entries are provisional until the banking day after settlement. In the Fedwire-based settlement service, the clearinghouse uses a zero-balance settlement account to receive and send Fedwire funds transfers to settle participants' obligations. Fedwire funds transfers are final and irrevocable when processed.

During 1998, the Reserve Banks prepared to offer an enhanced settlement service that allows settlement agents to submit settlement files electronically to a Reserve Bank through a Fedline terminal or a computer interface connection. The enhanced settlement service, to be introduced in the first quarter of 1999, will improve operational efficiency. It will also reduce settlement risk to participants by granting settlement finality on the settlement day and enable Reserve Banks to manage and limit risk by incorporating risk controls that are as robust as those used currently in the Fedwire funds transfer service. The Reserve Banks will continue to offer the current settlement sheet and Fedwire-based settlement services. The settlement sheet service, however, will be phased out by year-end 2001. The Fedwire-based service will be available indefinitely.

Fedwire Book-Entry Securities

Reserve Bank operating expenses and imputed costs for the Fedwire book-entry securities service totaled $13.0 million in 1998, compared with $15.5 million in 1997. Revenue from these operations totaled $18.3 million, and other income amounted to $0.4 million, resulting in income before income taxes of $5.7 million.

The Reserve Banks processed 5.1 million transfers of government agency securities on the Fedwire book-entry securities transfer system during the year, a 23.7 percent increase from the 1997 level. The increase may be attributable to securities movements associated with mergers and with more mortgage refinancing than in 1997, creating activity in the mortgage-backed securities market. Fees charged for Fedwire book-entry securities transfers did not change in 1998.[4]

In February 1998, the New York Reserve Bank converted its Fedwire securities transfer application to the Federal Reserve's centralized application, the National Book-Entry System (NBES), joining the eleven Reserve Banks that had converted in 1996 and 1997. The NBES has generated several benefits for the Fedwire book-entry securities service, including (1) an expanded account structure designed to accommodate the different needs of Federal Reserve customers and U.S. government agencies, (2) modular, centralized application software designed to facilitate a more rapid response to changing industry needs, (3) improved, standardized contingency and disaster recovery capabilities, and (4) processing efficiencies such as uniform operating hours in all Districts. Full implementation of NBES has created scale econo-

4. The revenues, expenses, and volumes reported here are for transfers of securities issued by federal government agencies, government-sponsored enterprises, and international institutions such as the World Bank. The Fedwire book-entry securities service also provides custody, transfer, and settlement services for U.S. Treasury securities. The Reserve Banks act as fiscal agents of the United States when they provide transfer and safekeeping of U.S. Treasury securities, and the Treasury Department assesses fees on depository institutions for some of these services. For more details, see the section "Marketable Treasury Securities."

mies that have lowered per-item data processing costs.

The volume of off-line Fedwire securities transfers, in which institutions that do not have an electronic connection to the Fedwire book-entry securities transfer system originate transfers through telephone instructions, has been declining substantially over the past few years. As a result of the decline and the small percentage of transfers originated off line (0.56 percent), the Federal Reserve began in 1998 consolidating its Fedwire off-line services at the Federal Reserve Banks of Boston and Kansas City. The consolidation will bring to securities transfers the same benefits it offers for funds transfers.

After requesting and receiving public comment on the issue, the Board decided in April not to implement an earlier opening time for the Fedwire book-entry securities service, mainly because of the anticipated cost and technical hurdles identified by industry participants and because of concerns expressed by the Department of the Treasury. Over time, the industry may eliminate some of these difficulties by, for example, implementing real-time and straight-through processing or improving contingency arrangements. The Federal Reserve plans to monitor developments in these areas and in the securities transfer market; if market demand for expanded hours arises, it will reconsider the issue of expanded operating hours for the Fedwire book-entry securities service.

Automated Clearinghouse

Reserve Bank operating expenses and imputed costs for commercial ACH services totaled $44.9 million in 1998, compared with $52.3 million in 1997. Revenue from ACH operations totaled $66.7 million, and other income amounted to $1.7 million, resulting in income before income taxes of $23.5 million. The Reserve Banks processed 3.0 billion commercial ACH transactions during the year, an increase of 13.9 percent over 1997 volume. Several fees were reduced early in the year: The fees for items originated in small and large files, for items received, and for addenda originated and received were reduced one to two mill, or 14 percent to 33 percent, depending on the product.

The Reserve Banks introduced several improvements to the ACH service in 1998. In the fall, they began providing FedEDI, electronic data interchange software that enables ACH customers to translate information accompanying ACH payments. The software supports both the U.S. Treasury's initiative to make most of its payments electronically and National Automated Clearing House Association rules. In November, the Reserve Banks began to test a commercial cross-border ACH service to facilitate greater exchange of electronic payments between the United States and Canada. During the year, Reserve Banks also worked with the U.S. Treasury, the National Automated Clearing House Association, and local ACH associations to promote direct deposit and electronic payments.

In December, the Board requested comment on the benefits and drawbacks of providing settlement finality on the morning of the settlement day for ACH credit transactions processed by the Reserve Banks. Settlement day finality would be conditioned on enhanced risk-control measures commensurate with those used in other services that have similar finality characteristics.

Noncash Collection

Reserve Bank operating expenses and imputed costs for noncash collection services totaled $2.1 million in 1998, compared with $3.2 million in 1997. Revenue from noncash operations totaled $3.5 million, and other income amounted to $0.1 million, resulting in income before income taxes of $1.5 million. The Reserve Banks processed 755,000 noncash collection items (coupons and bonds), a decrease of 14.8 percent from 1997 levels.

All noncash processing is centralized at the Jacksonville Branch of the Atlanta Reserve Bank.

Cash Services

Because providing high-quality currency and coin is a basic responsibility of the Federal Reserve, the Reserve Banks charge fees only for special cash services and nonstandard access.[5] Priced special cash services represent a very small portion (approximately 0.5 percent) of the cost of overall cash services provided by the Reserve Banks to depository institutions. Special cash services include wrapped coin, nonstandard packaging of currency and coin orders and deposits, and registered mail shipments of currency and coin.

The Cleveland District and the Helena Branch of the Minneapolis Reserve Bank provide wrapped coin as a priced service. The Chicago District provides currency in nonstandard packages, and the Helena Branch provides coin in nonstandard packages. In addition, five Districts provide cash transportation by registered mail. Reserve Bank operating expenses and imputed costs for special cash services totaled $2.4 million in 1998, compared with $4.5 million in 1997. Revenue from cash operations totaled $2.6 million, and other income amounted to $0.1 million, resulting in income before income taxes of $0.2 million.

Float

Federal Reserve float increased in 1998 to a daily average of $323.6 million, from a daily average of $282.0 million in 1997. The Federal Reserve recovers the cost of float associated with priced services as part of the fees for those services.

Developments in Currency and Coin

The Federal Reserve continued in 1998 to work closely with the Treasury to deter the counterfeiting of U.S. currency. The Series 1996 currency design program continued with the introduction of the new $20 note in September. The Series 1996 $50 note, introduced in October 1997, continued to gain acceptance and accounted for 49 percent of the $50 notes in circulation by the end of 1998. The Series 1996 $100 note, introduced in March 1996, accounted for 66 percent of $100 notes in circulation. Work on the Series 1996 $10 and $5 notes continued; distribution is scheduled for 2000.

The Federal Reserve's cost of new currency in 1998 was $409 million. The Treasury's Bureau of Engraving and Printing produced 9.8 billion notes during the year; 47 percent of the notes produced were of the Series 1996 design $100, $50, and $20 notes, 40 percent were $1 notes, and the remaining 13 percent were $5 and $10 notes.

The Federal Reserve supplies currency and coin to approximately 9,700 depository institutions throughout the United States; these institutions supply currency and coin to other depository institutions and the public. The value of currency and coin in circula-

5. Nonstandard access is not treated as a priced service; instead, fees for nonstandard access are treated as a recovery of expenses. See the discussion under "Developments in Currency and Coin" below.

tion increased 7 percent in 1998 and exceeded $517 billion at year-end. During the year, the Federal Reserve received more than 26.6 billion Federal Reserve notes in deposits from depository institutions and sent more than 27.5 billion Federal Reserve notes to depository institutions. Reserve Bank operating expenses for processing and storing currency and coin, including priced cash services, totaled $293 million for the year.

In March, the Board revised its uniform cash access policy to clarify the base level of free currency access to all depository institutions in an interstate banking environment. The policy became effective on May 4. The Board clarified that each depository institution may designate up to ten endpoints to receive free currency access from each Reserve Bank office but that an endpoint may not receive free cash access from more than one Reserve Bank office.[6] Depository institutions that meet minimum volume thresholds are eligible for more frequent free access; fees are charged for additional access beyond the free service level. The income from fees charged for additional access is treated as a recovery of expense rather than as priced service revenue. To date, the policy has resulted in larger deposits and larger orders of currency; Systemwide, the overall volume of currency has remained relatively stable.

Also in 1998, the Board approved the Federal Reserve Bank of San Francisco's proposal to establish a currency operations center in Phoenix, Arizona. Arizona depository institutions currently receive currency services from the Los Angeles Branch. The operations center will eliminate the need to transport currency over the long distance between Los Angeles and Phoenix and will improve cash services and access for all Arizona depository institutions.

6. A designated endpoint may be a branch, a head office, a money room, or an armored carrier used by the depository institution to provide cash.

Developments in Fiscal Agency and Government Depository Services

The Federal Reserve Act provides that when required by the Secretary of the Treasury, Reserve Banks will act as fiscal agents and depositories of the United States. As fiscal agents, Reserve Banks provide the Department of the Treasury with services related to the federal debt. For example, the Reserve Banks issue, transfer, reissue, exchange, and redeem marketable Treasury securities and savings bonds; they also process secondary market transfers initiated by depository institutions. As depositories, Reserve Banks collect and disburse funds on behalf of the federal government. They also provide fiscal agency services on behalf of several domestic and international government agencies.

The total cost of providing fiscal agency and depository services to the Treasury in 1998 amounted to $250.9 million, compared with $255.4 million in 1997 (table). The cost of providing services to other government agencies was $46.6 million, compared with $48.6 million in 1997.

The Federal Reserve controls collateral pledged to secure credit it extends to depository institutions and, in its role as fiscal agent for the U.S. Treasury, to secure Treasury tax and loan deposits held by depository institutions. In September, the Reserve Banks implemented mark-to-market pricing for book-entry collateral. If reliable and active markets exist for the assets, collateral valuation is generally based on market values; if market information is insufficient, valuation takes into account risk factors such as credit quality, payment streams, interest rate risk, and unanticipated credit or liquidity events. At the time mark-to-market pricing was implemented, the Federal Reserve was using a risk-based matrix to determine the value of non-priced collateral. Market pricing was applied to definitive (paper) instruments in 1995.

The Reserve Banks continued in 1998 to implement a policy, adopted in late 1996, to clarify the Reserve Banks' unique statutory relationship with the Treasury and other federal government entities. The policy, among other things, establishes uniform and consistent practices for accounting, reporting, and billing for the full costs of providing fiscal agency and depository services to the U.S. government. To capture these costs, the Reserve Banks developed the Government Entity Accounting and Reporting System, which collects cost information from each District and issues quarterly bills to the appropriate government entity. In 1998, total reimbursable expenses for fiscal agency and depository services to the Treasury and other government agencies were $297.5 million, a decrease of $6.5 million from 1997. Reimbursement has been received or is expected for most of the expenses billed.

Fiscal Agency Services

The Reserve Banks handle marketable Treasury securities and savings bonds

Expenses of the Federal Reserve Banks for Fiscal Agency and Depository Services, 1998, 1997, and 1996

Thousands of dollars

Agency and service	1998	1997	1996
DEPARTMENT OF THE TREASURY			
Bureau of the Public Debt			
Savings bonds	71,401.8	70,340.4	78,765.8
Treasury Direct	35,859.1	35,440.4	26,788.8
Commercial book entry	17,880.4	26,809.4	27,099.0
Marketable Treasury issues	15,530.5	14,855.4	22,349.9
Definitive securities and Treasury coupons	3,734.2	3,618.9	3,498.5
Other services	83.7	...	...
Total	144,489.7	151,064.5	158,502.0
Financial Management Service			
Treasury tax and loan and Treasury general account	35,428.2	35,265.9	38,828.2
Government check processing	34,096.4	26,548.0	22,604.1
Automated clearinghouse	11,716.0	14,477.3	20,557.0
Government agency check deposits	2,731.0	2,795.3	3,366.1
Fedwire funds transfers	186.3	422.0	455.3
Other services	16,045.2	20,994.2	17,346.3
Total	100,203.1	100,502.7	103,157.1
Other Treasury			
Total	6,237.6	3,840.0	3,554.6
Total, Treasury	250,930.4	255,407.2	265,213.6
OTHER FEDERAL AGENCIES			
Department of Agriculture			
Food coupons	24,452.4	25,495.7	25,287.6
United States Postal Service			
Postal money orders	5,275.3	6,108.7	5,722.9
Miscellaneous agencies			
Other services	16,850.6	17,042.1	18,788.8
Total, other agencies	46,578.3	48,646.5	49,799.3
Total reimbursable expenses	**297,508.7**	**304,053.7**	**315,012.9**

and monitor the collateral pledged by depository institutions to the federal government.

Marketable Treasury Securities

Reserve Bank 1998 operating expenses for activities related to marketable Treasury securities (Treasury Direct, commercial book entry, Treasury auctions issues, and definitive securities and coupons) amounted to $73.0 million, a 9.5 percent decrease from 1997. The Reserve Banks processed more than 316,000 commercial tenders for government securities in Treasury auctions, a 23.2 percent decline from the 1997 volume level. Commercial tenders are processed at the New York, Chicago, and San Francisco Reserve Banks using an application known as the Treasury Automated Auction Processing System.

The Reserve Banks operate two book-entry securities systems for Treasury securities: the Fedwire book-entry securities system, which provides custody and transfer services, and Treasury Direct, which provides custody services only.[7] Almost all book-entry Treasury securities, 97.5 percent of the total par value outstanding at year-end 1998, were maintained on Fedwire; the remainder were maintained on Treasury Direct. The Reserve Banks in 1998 processed 8.9 million Fedwire transfers of Treasury securities, a 1.9 percent increase from the 1997 level. They also processed 26.7 million interest and principal payments for Treasury and government agency securities, an increase of 11.4 percent over 1997.

7. The Fedwire book-entry securities mechanism is also used for safekeeping and transfer of securities issued by federal government agencies, government-sponsored enterprises, and international institutions. For more details, see the section "Fedwire Book-Entry Securities" earlier in this chapter.

Treasury Direct, operated by the Philadelphia Reserve Bank, is a system of book-entry securities accounts for institutions and individuals planning to hold their Treasury securities to maturity. The Treasury Direct system holds more than 1.9 million accounts. During 1998, the Reserve Banks processed more than 309,000 tenders for Treasury Direct customers seeking to purchase Treasury securities at Treasury auctions and handled 1.1 million reinvestment requests; the volume of tenders was 28.6 percent lower than in 1997, and the volume of reinvestment requests was 37.7 percent lower. The Philadelphia Reserve Bank issued 6.6 million payments for discounts, interest, and redemption proceeds; the Treasury Direct facility was also used to originate 2.8 million payments for savings bonds and almost 46,000 interest payments for definitive Treasury issues.

As a service to Treasury Direct investors, the Chicago Reserve Bank, through the Sell Direct program, sells investors' Treasury securities on the secondary market for a fee. In 1998, Sell Direct's first full year of operation, the Bank sold more than 16,000 securities worth $510.6 million and collected more than $550,000 in fees on behalf of the Treasury.

In 1998, the Treasury started accepting tenders over the Internet and by telephone for Treasury Direct investors who pay for their Treasury securities by ACH debits to their bank accounts. Investors can also reinvest their maturing Treasury securities and request a statement of their accounts electronically. Late in the year, the Reserve Banks began to work with Treasury to identify other electronic alternatives for serving Treasury Direct investors and to reduce the number of Reserve Bank sites providing Treasury Direct customer service.

Savings Bonds

Reserve Bank operating expenses for savings bond activities amounted to $71.4 million in 1998, an increase of 1.6 percent over 1997 expenses. The Reserve Banks printed and mailed 45.2 million savings bonds on behalf of the Treasury's Bureau of the Public Debt, a 12.1 percent decline from 1997. They processed 7.1 million original-issue transactions. They also processed approximately 604,000 redemption, reissue, and exchange transactions, a 10.4 percent decrease from 1997. In addition, the Reserve Banks responded to 1.7 million service calls from owners of savings bonds, approximately the same number as in 1997. Savings bond operations are conducted at five Reserve Bank offices: Buffalo, Pittsburgh, Richmond, Minneapolis, and Kansas City. All five offices process savings bond transactions, but only the Pittsburgh and Kansas City offices print and mail savings bonds.

The Reserve Banks made changes to both their automated applications and their processing procedures for the Treasury's new inflation-indexed Series I savings bond, which was introduced on September 1. The earnings rate for the Series I bond is the sum of the fixed rate set at the time the bond is purchased plus an inflation rate based on an annualized rate of inflation. Series EE and HH savings bonds are still available.

The Reserve Banks, working with the Treasury, also completed a long-range automation study in 1998 and agreed to adopt a distributed-processing automation platform for savings bonds in the future to replace several current mainframe applications. The Pittsburgh Branch of the Cleveland Reserve Bank completed a successful pilot project to use digital scanning software to convert applications submitted on paper by banks across the country into an electronic medium. After minimal operator intervention, the resulting electronic file can be used. The other four savings bond processing sites expect to install similar systems in 1999.

The Richmond Reserve Bank, on behalf of the Treasury, introduced the EasySaver plan, which permits individuals who do not have access to a payroll deduction plan to make recurring savings bond purchases. Current over-the-counter purchasers, employees of small businesses, and retirees are expected to benefit.

Other Initiatives

The St. Louis Reserve Bank fully implemented Cash Track in 1998. By consolidating information about receipts and payments processed on behalf of the Treasury, Cash Track makes it easier for the Treasury to forecast its cash needs.

Depository Services

The Reserve Banks maintain the Treasury's funds account, accept deposits of federal taxes and fees, pay checks drawn on the Treasury's account, and make electronic payments on behalf of the Treasury.

Federal Tax Payments

Reserve Bank operating expenses related to federal tax payment activities in 1998 totaled $35.4 million. The Banks processed approximately 231,000 paper and 5.0 million electronic advices of credit from depository institutions handling tax payments for businesses and individuals. Advices of credit are notices from depository institutions to the Federal Reserve and the Treasury summarizing taxes collected on a given day. The volume of paper advices of credit declined 30.8 percent from 1997 to 1998, and the volume of tax payments submitted electronically decreased 12.3 percent. The Reserve Banks also received a small number of tax payments directly.

Depository institutions that receive tax payments may place the funds in a Treasury tax and loan (TT&L) account or remit the funds to a Reserve Bank. The Minneapolis Reserve Bank operates an automated system through which businesses pay taxes that are due on the same day the tax liability is determined. These electronic tax payments, a part of the Treasury's Electronic Federal Tax Payment System, are invested in depository institutions' TT&L balances via the Federal Reserve's TT&L mechanism. In 1998, this electronic tax application processed approximately 106,000 tax payments from 6.3 million taxpayers totaling $151.1 billion. Most Electronic Federal Tax Payment System payments are made via ACH to accounts maintained by two commercial banks as Treasury's financial agents.

The St. Louis Reserve Bank, acting on behalf of the Treasury, began planning to truncate paper tax coupons collected by all Reserve Banks when the new Treasury Investment Program is implemented in mid-2000. The Treasury Investment Program, designed to replace the twelve existing TT&L software applications with a single application and database, will process only electronic tax payments, which now constitute most business tax payments. A separate application, called Patax (paper tax system), will automate the handling of paper tax payments.

Payments Processed for the Treasury

Reserve Bank operating expenses related to government payment operations (check processing, ACH, agency deposits, and funds transfers) amounted to $48.7 million in 1998. The Treasury continued to encourage electronic payments: The number of ACH transactions processed for the Treasury totaled 753 million, an increase of 11.2 percent over 1997.[8] Most government payments made via the ACH are social security, pension, and salary payments; some are payments to vendors. All recurring Treasury Direct payments and many definitive securities interest payments are made via the ACH.

The Treasury also continues to reduce the number of payments it makes by check. The Reserve Banks processed 321 million paper government checks in 1998, a decrease of 14.9 percent from 1997. The Reserve Banks also issued more than 785,000 million fiscal agency checks, a decrease of 24.9 percent. Fiscal agency checks were used primarily to pay semiannual interest on registered, definitive Treasury notes and bonds and on Series H and HH savings bonds, but they were also used to pay the principal of matured securities and coupons and to make discount payments to first-time purchasers of government securities through Treasury Direct.

In 1998, the Reserve Banks completed implementation of a check imaging system that captures and stores digital images of U.S. government checks for the Treasury's Financial Management Service. Imaging all government checks improves processing efficiency for the U.S. Treasury while lowering its operating costs.

Services Provided to Other Entities

When required to do so by the Secretary of the Treasury or when required or

8. ACH nonvalue transactions processed for the Treasury amounted to an additional 17.7 million items, an increase of 105.5 percent over 1997.

permitted to do so by federal statute, the Reserve Banks provide fiscal agency and depository services to other domestic and international agencies. Depending on the authority under which the services are provided, the Reserve Banks may (1) maintain book-entry accounts of government agency securities and handle their transfer,[9] (2) provide custody for the stock of unissued, definitive securities, (3) maintain and update balances of outstanding book-entry and definitive securities for issuers, (4) perform other securities-servicing activities, (5) maintain funds accounts for some government agencies, and (6) provide various payments services.

One such service is the provision of food coupon services for the U.S. Department of Agriculture. Reserve Bank operating expenses for food coupon services in 1998 totaled $24.5 million, 4.1 percent less than in 1997. The Reserve Banks redeemed 1.8 billion food coupons, a decrease of 35.4 percent from 1997. As a result of the Department of Agriculture's program to provide benefits electronically, the volume of paper food coupons redeemed by the Reserve Banks is expected to continue to decline.

As fiscal agents of the United States, the Reserve Banks also process all postal money orders deposited by banks for collection, 213 million in 1998, a 4.4 percent increase over 1997. Much of this work is centralized at the Federal Reserve Bank of St. Louis. In 1998, the St. Louis Reserve Bank worked with the U.S. Postal Service to design an image capture service for postal money orders. This service, which is similar to that provided for Treasury checks, is scheduled to be implemented in 2000; digital files of paid money orders will facilitate the Postal Service's accounting, reconcilement, and claims processes.

9. The Federal Reserve tracks the transfer and account maintenance of agency securities as a priced service to depository institutions; the expenses of providing these services are not charged to the agencies.

Information Technology

In 1998, the Federal Reserve established a Systemwide information technology governance and management structure that spans the full range of central bank and financial services functions performed by the Reserve Banks and the Board of Governors. An oversight committee was formed to establish the strategic direction for information technology Systemwide. The position of Director of Federal Reserve Information Technology was also established.

Federal Reserve Information Technology is composed of two operating units, Federal Reserve Automation Services and Information Technology Planning and Standards. The former supports the Federal Reserve's mainframe computing and national network services. The latter is a new unit that develops information technology plans and standards for the System and assists with information technology decisions.

Reserve Banks have made significant progress in using the World Wide Web as a new service-delivery channel. Web technology provides new opportunities to improve depository institutions' access to electronic services. The web is well suited for programs that allow customers to submit forms-based information to the Federal Reserve or to retrieve information stored on a Federal Reserve database. Several trials were conducted in 1998 to test customer acceptance of this new service-delivery channel and the security and network components that allow customers secure access to web-based services. Among the services tested were cash and savings bond ordering, on-line submission of statistical reports, and check image retrieval.

The Reserve Banks have completed an extensive analysis of the encryption techniques they use to ensure the security of payments information and other information electronically transmitted daily between Reserve Banks and financial institutions nationwide. As a consequence, they have adopted Triple DES as the System's encryption standard. Triple DES, an advanced application of the Data Encryption Standard (DES), is a complex scrambling technique. The new standard is designed to bring even greater protection to data that are transmitted electronically among Reserve Banks and between the Federal Reserve and financial institutions. The Federal Reserve began installing Triple DES on its internal network in 1998 and will complete installation in 1999. Depository institutions will begin receiving Triple DES in 1999.

Financial Examinations of Federal Reserve Banks

Section 21 of the Federal Reserve Act requires the Board of Governors to order an examination of each Federal Reserve Bank at least once a year; the Board assigns this responsibility to its Division of Reserve Bank Operations and Payment Systems. The division engages a public accounting firm to perform an annual audit of the combined financial statements of the Reserve Banks. (See the following section, ''Federal Reserve Banks Combined Financial Statements.'') The public accounting firm also audits the annual financial statements of each of the twelve Banks. In 1998, the Reserve Banks endorsed the Systemwide implementation of the framework established by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) for internal controls over financial reporting, including the safeguarding of assets. Within this framework, each Reserve Bank provides an assertion letter to its board of directors annually confirming adherence to these standards, and a public accounting firm certifies management's assertion and issues an attestation report to the Bank's board of directors and to the Board of Governors.

In 1998, the division's attentions at the twelve Banks focused on rendering an opinion on each District's internal control system using a format consistent with the integrated COSO framework. The scope of these examinations included comprehensive reviews of each Bank's internal control system in terms of the five COSO control components: control environment, risk assessment, control activities, information and communication, and monitoring.

Each year, the division assesses compliance with policies established by the Federal Reserve's Federal Open Market Committee (FOMC) by examining the accounts and holdings of the System Open Market Account at the Federal Reserve Bank of New York and the foreign currency operations conducted by that Bank. In addition, a public accounting firm certifies the schedule of participated asset and liability accounts and the related schedule of participated income accounts at year-end. Division personnel follow up on the results of these audits. The FOMC receives the external audit reports and the report on the division's follow-up.

Income and Expenses

The accompanying table summarizes the income, expenses, and distributions of net earnings of the Federal Reserve Banks for 1997 and 1998.

Income in 1998 was $28,149 million, compared with $26,917 million in 1997. Revenue from priced services was $816 million. Total expenses were $2,011 million ($1,487 million in operating expenses, $346 million in earnings credits granted to depository institutions, and $178 million in assessments for expenditures by the Board of Governors). The cost of new currency was $409 million. Unreimbursed expenses for services provided to the Treasury and other government entities amounted to $8 million.[10]

The profit and loss account showed a net gain of $1,914 million. The gain was due primarily to realized and unrealized profits on assets denominated in foreign currencies that were revalued to reflect current exchange rates. Statutory dividends paid to member banks totaled $343 million, $43 million more than in 1997; the increase reflects an increase in the capital and surplus of member banks and a consequent increase in the paid-in capital stock of the Reserve Banks.

Payments to the Treasury in the form of interest on Federal Reserve notes totaled $26,561 million in 1998, up from $20,659 million in 1997; the payments equal net income after the deduction of dividends paid and of the amount necessary to bring the surplus of the Reserve Banks to the level of capital paid in.

In the "Statistical Tables" section of this Report, table 5 details the income and expenses of each Federal Reserve Bank for 1998, and table 6 shows a condensed statement for each Bank for 1914–98. A detailed account of the assessments and expenditures of the Board of Governors appears in the section "Board of Governors Financial Statements."

10. The Reserve Banks bill the Treasury and other government entities for the cost of certain services, and the portions of the bills that are not paid are reported as unreimbursed expenses.

Holdings of Securities and Loans

The Reserve Banks' average daily holdings of securities and loans during 1998 amounted to $447,095 million, an

Income, Expenses, and Distribution of Net Earnings of Federal Reserve Banks, 1998 and 1997

Millions of dollars

Item	1998	1997
Current income	28,149	26,917
Current expenses	1,833	1,976
Operating expenses[1]	1,487	1,618
Earnings credits granted	346	359
Current net income	26,316	24,941
Net additions to (deductions from, –) current net income	1,914	–2,577
Cost of unreimbursed services to Treasury	8	35
Assessments by the Board of Governors	587	539
For expenditures of Board	178	174
For cost of currency	409	364
Net income before payments to Treasury	27,636	21,790
Dividends paid	343	300
Transferred to surplus	732	832
Payments to Treasury	26,561	20,659

Note. In this and the following table, components may not sum to totals because of rounding.

1. Includes a net periodic credit for pension costs of $288 million in 1998 and $200 million in 1997.

Securities and Loans of Federal Reserve Banks, 1996–98

Millions of dollars, except as noted

Item and year	Total	U.S. government securities[1]	Loans[2]
Average daily holdings[3]			
1996	390,268	390,063	206
1997	417,805	417,529	277
1998	447,095	446,933	161
Earnings			
1996	23,895	23,884	11
1997	25,714	25,699	15
1998	26,851	26,842	9
Average interest rate (percent)			
1996	6.12	6.12	5.27
1997	6.15	6.16	5.27
1998	6.01	6.01	5.44

1. Includes federal agency obligations.
2. Does not include indebtedness assumed by the Federal Deposit Insurance Corporation.
3. Based on holdings at opening of business.

increase of $29,289 million over 1997 (see table). Holdings of U.S. government securities increased $29,404 million, and holdings of loans decreased $116 million.

The average rate of interest earned on Reserve Banks' holdings of government securities declined to 6.01 percent, from 6.16 percent in 1997, and the average rate of interest earned on loans rose to 5.44 percent from 5.27 percent.

Volume of Operations

Table 8 in the "Statistical Tables" section shows the volume of operations in the principal departments of the Federal Reserve Banks for the years 1994 through 1998.

Federal Reserve Bank Premises

The expansion and renovation of the Cleveland Reserve Bank's headquarters building was completed in 1998. Also, the design of the Atlanta Reserve Bank's new Birmingham Branch building was completed and construction was begun. The Atlanta Bank sold the existing Branch building but will continue to lease it until the new facility is completed. Design of the Bank's new headquarters building continued.

Multiyear renovation programs continued for the New York Reserve Bank's headquarters building and for buildings for the Kansas City Bank's Oklahoma City Branch and the San Francisco Bank's Seattle, Portland, and Salt Lake City Branches. Also, the multiyear leasehold improvements program was begun for the New York Reserve Bank's new leased office space in New York City. ■

Pro Forma Financial Statements for Federal Reserve Priced Services

Pro Forma Balance Sheet for Priced Services, December 31, 1998 and 1997

Millions of dollars

Item	1998		1997[1]	
Short-term assets (Note 1)				
Imputed reserve requirements on clearing balances	725.3		658.0	
Investment in marketable securities	6,527.7		5,922.0	
Receivables	76.8		72.8	
Materials and supplies	4.4		2.8	
Prepaid expenses	20.4		9.0	
Items in process of collection	4,272.5		4,505.8	
Total short-term assets		11,626.9		11,170.3
Long-term assets (Note 2)				
Premises	398.6		389.2	
Furniture and equipment	127.6		137.4	
Leases and leasehold improvements	26.8		31.8	
Prepaid pension costs	437.3		350.2	
Total long-term assets		990.4		908.5
Total assets		**12,617.3**		**12,078.9**
Short-term liabilities				
Clearing balances and balances arising from early credit of uncollected items	8,011.8		7,289.0	
Deferred-availability items	3,513.7		3,796.9	
Short-term debt	101.5		84.5	
Total short-term liabilities		11,626.9		11,170.3
Long-term liabilities				
Obligations under capital leases	.0		.7	
Long-term debt	193.6		188.8	
Postretirement/postemployment benefits obligation	217.4		205.0	
Total long-term liabilities		411.0		394.5
Total liabilities		**12,037.9**		**11,564.8**
Equity		579.4		514.0
Total liabilities and equity (Note 3)		**12,617.3**		**12,078.9**

NOTE. Components may not sum to totals because of rounding.

The priced services financial statements consist of these tables and the accompanying notes.

1. Some of these data have been revised.

Pro Forma Income Statement for Federal Reserve Priced Services, 1998 and 1997

Millions of dollars

Item	1998		1997	
Revenue from services provided to depository institutions (Note 4)		816.0		789.1
Operating expenses (Note 5)		654.1		672.6
Income from operations		161.9		116.4
Imputed costs (Note 6)				
Interest on float	16.2		14.6	
Interest on debt	17.0		17.5	
Sales taxes	8.7		9.8	
FDIC insurance	1.4	43.4	6.9	48.9
Income from operations after imputed costs		118.5		67.6
Other income and expenses (Note 7)				
Investment income	352.0		367.7	
Earnings credits	–328.2	23.7	–338.0	29.7
Income before income taxes		142.3		97.3
Imputed income taxes (Note 8)		45.7		31.2
Net income (Note 9)		**96.6**		**66.1**
MEMO: Targeted return on equity (Note 10)		66.8		54.3

NOTE. Components may not sum to totals because of rounding.

The priced services financial statements consist of these tables and the accompanying notes.

Pro Forma Income Statement for Federal Reserve Priced Services, by Service, 1998

Millions of dollars

Item	Total	Commercial check collection	Funds transfer and net settlement	Book-entry securities	Commercial ACH	Noncash collection	Cash services
Revenue from operations	816.0	632.6	92.2	18.3	66.7	3.5	2.6
Operating expenses (Note 5)	654.1	540.0	69.5	12.4	42.8	1.9	2.4
Income from operations	161.9	92.6	22.7	5.9	23.9	1.6	.2
Imputed costs (Note 6)	43.4	37.3	3.2	.6	2.1	.2	.0
Income from operations after imputed costs	118.5	55.3	19.5	5.3	21.8	1.4	.1
Other income and expenses, net (Note 7)	23.7	19.1	2.3	.4	1.7	.1	.1
Income before income taxes	142.3	74.5	21.8	5.7	23.5	1.5	.2

NOTE. Components may not sum to totals because of rounding.

The priced services financial statements consist of these tables and the accompanying notes.

FEDERAL RESERVE BANKS

Notes to Financial Statements for Priced Services

(1) Short-Term Assets

The imputed reserve requirement on clearing balances held at Reserve Banks by depository institutions reflects a treatment comparable to that of compensating balances held at correspondent banks by respondent institutions. The reserve requirement imposed on respondent balances must be held as vault cash or as non-earning balances maintained at a Reserve Bank; thus, a portion of priced services clearing balances held with the Federal Reserve is shown as required reserves on the asset side of the balance sheet. The remainder of clearing balances is assumed to be invested in three-month Treasury bills, shown as investment in marketable securities.

Receivables are (1) amounts due the Reserve Banks for priced services and (2) the share of suspense-account and difference-account balances related to priced services.

Materials and supplies are the inventory value of short-term assets.

Prepaid expenses include salary advances and travel advances for priced-service personnel.

Items in process of collection is gross Federal Reserve cash items in process of collection (CIPC) stated on a basis comparable to that of a commercial bank. It reflects adjustments for intra-System items that would otherwise be double-counted on a consolidated Federal Reserve balance sheet; adjustments for items associated with nonpriced items, such as those collected for government agencies; and adjustments for items associated with providing fixed availability or credit before items are received and processed. Among the costs to be recovered under the Monetary Control Act is the cost of float, or net CIPC during the period (the difference between gross CIPC and deferred-availability items, which is the portion of gross CIPC that involves a financing cost), valued at the federal funds rate.

(2) Long-Term Assets

Consists of long-term assets used solely in priced services, the priced-services portion of long-term assets shared with nonpriced services, and an estimate of the assets of the Board of Governors used in the development of priced services. Effective Jan. 1, 1987, the Reserve Banks implemented the Financial Accounting Standards Board's Statement of Financial Accounting Standards No. 87, *Employers' Accounting for Pensions* (SFAS 87). Accordingly, the Reserve Banks recognized credits to expenses of $87.1 million in 1998 and $62.8 million in 1997 and corresponding increases in this asset account.

(3) Liabilities and Equity

Under the matched-book capital structure for assets that are not "self-financing," short-term assets are financed with short-term debt. Long-term assets are financed with long-term debt and equity in a proportion equal to the ratio of long-term debt to equity for the fifty largest bank holding companies, which are used in the model for the private-sector adjustment factor (PSAF). The PSAF consists of the taxes that would have been paid and the return on capital that would have been provided had priced services been furnished by a private-sector firm. Other short-term liabilities include clearing balances maintained at Reserve Banks and deposit balances arising from float. Other long-term liabilities consist of accrued postemployment and postretirement benefits costs and obligations on capital leases.

(4) Revenue

Revenue represents charges to depository institutions for priced services and is realized from each institution through one of two methods: direct charges to an institution's account or charges against its accumulated earnings credits.

(5) Operating Expenses

Operating expenses consist of the direct, indirect, and other general administrative expenses of the Reserve Banks for priced services plus the expenses for staff members of the Board of Governors working directly on the development of priced services. The expenses for Board staff members were $2.8 million in 1998 and $2.9 million in 1997. The credit to expenses under SFAS 87 (see note 2) is reflected in operating expenses.

The income statement by service reflects revenue, operating expenses, and imputed costs except for income taxes. Certain corporate overhead costs not closely related to any particular priced service are allocated to priced services in total based on an expense–ratio method, but are allocated among priced services based on management decision. Corporate overhead was allocated among the priced services during 1998 and 1997 as follows:

	1998	1997
Check	27.1	30.7
ACH	.0	.0
Funds transfer	19.6	12.3
Book entry	.0	.0
Noncash collection	.1	.0
Special cash services	.1	.3
Total	**46.9**	**43.3**

Total operating expense on the income statement by service does not equal the sum of operating expenses for each service because of the effect of SFAS 87. Although the portion of the SFAS 87 credit related to the current year is allocated to individual services, the amortization of the initial effect of implementation is reflected only at the System level.

(6) Imputed Costs

Imputed costs consist of interest on float, interest on debt, sales taxes, and the FDIC assessment. Interest on float is derived from the value of float to be recovered, either explicitly or through per-item fees, during the period. Float costs include costs for checks, book-entry securities, noncash collection, ACH, and funds transfers.

Interest is imputed on the debt assumed necessary to finance priced-service assets. The sales taxes and FDIC assessment that the Federal Reserve would have paid had it been a private-sector firm are among the components of the PSAF (see note 3).

Float costs are based on the actual float incurred for each priced service. Other imputed costs are allocated among priced services according to the ratio of operating expenses less shipping expenses for each service to the total expenses for all services less the total shipping expenses for all services.

The following list shows the daily average recovery of float by the Reserve Banks for 1998 in millions of dollars:

Total float	632.7
Unrecovered float	18.3
Float subject to recovery	614.4
Sources of recovery of float	
Income on clearing balances	61.3
As-of adjustments	309.1
Direct charges	137.2
Per-item fees	106.8

Unrecovered float includes float generated by services to government agencies and by other central bank services. Float recovered through income on clearing balances is the result of the increase in investable clearing balances; the increase is produced by a deduction for float for cash items in process of collection, which reduces imputed reserve requirements. The income on clearing balances reduces the float to be recovered through other means. As-of adjustments and direct charges are midweek closing float and interterritory check float, which may be recovered from depositing institutions through adjustments to the institution's reserve or clearing balance or by valuing the float at the federal funds rate and billing the institution directly. Float recovered through per-item fees is valued at the federal funds rate and has been added to the cost base subject to recovery in 1998.

(7) Other Income and Expenses

Consists of investment income on clearing balances and the cost of earnings credits. Investment income on clearing balances represents the average coupon-equivalent yield on three-month Treasury bills applied to the *total* clearing balance maintained, adjusted for the effect of reserve requirements on clearing balances. Expenses for earnings credits granted to depository institutions on their clearing balances are derived by applying the average federal funds rate to the *required* portion of the clearing balances, adjusted for the net effect of reserve requirements on clearing balances.

Because clearing balances relate directly to the Federal Reserve's offering of priced services, the income and cost associated with these balances are allocated to each service based on each service's ratio of income to total income.

(8) Income Taxes

Imputed income taxes are calculated at the effective tax rate derived from the PSAF model (see note 3). Taxes have not been allocated by service because they relate to the organization as a whole.

(9) Adjustments to Net Income for Price Setting

In setting fees, certain costs are excluded in accordance with the System's overage and shortfalls policy and its automation consolidation policy. Accordingly, to compare the financial results reported in this table with the projections used to set prices, adjust net income as follows (amounts shown are net of tax):

	1998	1997
Net income	96.6	66.1
Amortization of the initial effect of implementing SFAS 87	−10.2	−10.2
Deferred costs of automation consolidation	−14.5	−8.5
Adjusted net income	71.9	47.4

(10) Return on Equity

The after-tax rate of return on equity that the Federal Reserve would have earned had it been a private business firm, as derived from the PSAF model (see note 3). This amount is adjusted to reflect the recovery of $14.5 million of automation consolidation costs for 1998 and $8.5 million for 1997. The Reserve Banks plan to recover these amounts, along with a finance charge, by the end of the year 1999. After-tax return on equity has not been allocated by service because it relates to the organization as a whole.